

Tennessee Pollution Prevention Partnership Success Story



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Lower VOC Coatings Mean Fewer Air Emissions

The Member

Marvin Windows and Doors of Ripley is a family-owned business with corporate offices located in Warroad, MN. The Ripley facility was opened in 1980 and has grown to 680 associates primarily on the day shift. When you visit the Marvin W&D Ripley facility, you find a certain type of individual: independent, hard working and strong in character and conviction. It's certainly why some of Marvin's greatest innovations come from their employees. At this location, Marvin produces a high-end door product, including the "storm plus" designed to meet severe weather codes, for residential and commercial applications. Each door assembly is built to order and promptly shipped on Marvin's own fleet and with no finished goods inventory maintained in a warehouse. At Marvin's Ripley facility Continuous Improvement tools are extensively utilized to be the "best in class" and every job is performed one way: right. For the past four years, the Marvin Ripley facility has been a TOSHA STAR facility under the Voluntary Protection Program and wants to be known as a great place to work and the employer of choice in Ripley. This dedication may never make Marvin the biggest window and door manufacturer in the world but we believe it makes us the best.

The Story

As a Title V Permit holder, Marvin's Ripley facility is strongly focused on searching out and evaluating any and all opportunities to reduce emissions. The primer utilized in the processes at Marvin is a low Volatile Organic Compound (VOC) formulation; however, it still accounts for approximately 15 tons of VOCs per year. Numerous tests have been conducted in an effort to identify a viable substitute. Based on a series of tests in October-November 2004, Marvin's Ripley facility began phasing out the current low

VOC primer and incorporating a 20-30% lower VOC primer. Since our plant has changed the formulation on water-based primer for our wood door products, the VOC content has been reduced from .40 lbs/gal to .16 lbs/gal, which is over 50% reduction. We have also changed the water-based urethane clear from 1.77 lbs/gal to 0.54 lbs/gal, which is a 70% reduction.



The Success

The change in VOC primer saves an estimated 3-4 tons/year in VOC emissions. On average, the Ripley facility utilizes 350 gallons of water-based primer per month; thus, the net reduction in VOCs is 1008 lbs/year, or over 50% reduction. On average, the Ripley facility is using 32 gallons/month of urethane clear; thus, the net reduction in VOCs is 472 lbs/year.

The Pollution Prevented

Changing coatings utilized in our process requires extensive testing for warranty performance as well as plant operations, safety and environmental considerations. The enhancements detailed above have continued our high product integrity while lowering our total annual air emissions by three (3) tons.

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